

WEIGHING THE EVIDENCE

One University Takes a Hard Look at Disordered Eating Among Athletes

Case Study by Eric Weinberger for the Strategic Training Initiative
for the Prevention of Eating Disorders
www.hsph.harvard.edu/stripped

ADVANCED TEACHING NOTE by Emily Kroshus

The primary target audience for this teaching case is graduate students in public health, particularly those in courses focused on public health program planning and evaluation, health psychology, or adolescent health. The case is also suitable for graduate students in other disciplines, such as exercise science or kinesiology, nutrition, athletic training, physical education, or coaching. Experienced coaches, athletic trainers and other professionals who work with athletes at risk of eating disorders may also find this case useful as part of continuing education activities.

This teaching note is written to give teachers all the information and guidance you need to adopt this case in your classroom. The teaching note covers background material on the case, including synopsis, explanation of its real-world basis, teaching objectives, target audience, and a list of case materials and required readings for learners. It also includes a detailed lesson plan for the teacher that is designed with a 1 hour and 50 minute session in mind. Of course teachers can modify the lesson plan and assigned readings to accommodate a shorter or longer class period or to spread the case out over two class periods. At the end of this teaching note are a written homework assignment and in-class assignment instructions. The written homework assignment should be distributed to students along with the required reading one week before the class session in which the case will be discussed. The in-class assignment instructions should be handed out to students at the start of the class period dedicated to discussion of this case.

Please note that eating disorders are a serious mental health issue. Some students in your class may be suffering from an eating disorder or have recovered from one. Other students may have close friends or family members who have been afflicted with an eating disorder. It is strongly recommended that you begin the class session by reminding students that because many mental health concerns are “invisible” to an outside observer it is often difficult to know when individuals are suffering, including their own classmates, friends, or family members. It can be helpful to remind students at the start of class that being respectful and constructive in how we communicate about mental health concerns is critical. If students express concerns about their own eating behaviors, it is recommended that you refer them to your school’s counseling center. A good resource for students with additional questions, or if you would like to learn more about eating disorders, is the National Eating Disorder Association: <http://www.nationaleatingdisorders.org/general-information>.

A. Synopsis

When a student-athlete falls ill with an eating disorder and needs treatment, chances are that many factors came into play. While some might see an eating disorder as arising only because of personal factors—such as a person’s genes or her or his family, choices in diet or priorities, or because of a particular psychological make-up—the reality is that all of these individual and family concerns are very much shaped by the larger environment, from extended family to school to media and society as a whole. For college athletes, the environment on campus, on their team, and in their sport may be pivotal. For university athletic programs that wish to do better by their students, thinking about systems and the interconnection of all aspects of student life and athletic pressures for performance is paramount.

In “Weighing the Evidence: One University Takes a Hard Look at Disordered Eating Among Athletes,” the new dean of the undergraduate college at the fictitious Colburn University, Francis Reilly, has found himself needing to peel back some of the layers embedding college athletics on the issue of eating disorders among athletes, assisted by his dean of student life, Shinique Palmer, a star athlete herself during her Colburn undergraduate years in the mid-1980s. In point of view, the narrative oscillates between a perch from “on high”—that of top-level administrators like Reilly, Palmer, and athletic director Harry Ritchie—and what might be called “ground level”: the individual students, teammates, coaches, and athletic trainers dealing every day with athletes and their issues, including some cases (not always clear or diagnosed) of eating disorders. An athletic trainer for one team, Gail Mendoza, has become the default “case manager” for such athletes across all the teams; but this may not be the best structure to get help to the students who need it. A parent’s intervention into the case of her child, a freshman gymnast, points to many problems that need thinking anew if Colburn is to create a healthy environment for its student-athletes.

B. Real-World Basis

Eating disorders are one of the most prevalent mental health issues on college campuses, and college athletes are a vulnerable population. This is an important public health concern because eating disorders can have long-term health consequences, and in some cases they can be fatal. Some symptoms of eating disorders include muscle loss and weakness, osteoporosis and electrolyte imbalances that can lead to cardiac arrhythmia. However, an individual doesn’t have to meet all of the criteria for a clinically diagnosable eating disorder to experience negative health consequences. Individuals who don’t consume enough calories to meet their energy needs can experience a cascade of physical problems, starting with hormonal disruption (which in females may result in disrupted menstrual function), and in many cases ending with lasting outcomes such as osteoporosis. Among female athletes, this inter-related set of conditions—energy intake, menstrual function, and bone health—has been called the Female Athlete Triad. Research increasingly indicates that male athletes who inadequately fuel their bodies can experience a similar progression of hormonal disruption and compromised bone health. Inadequate energy can result from restrictive eating or from purging or

compensatory behaviors, like vomiting, laxative use, or over-exercising. These behaviors can also have many negative health consequences (such as electrolyte imbalances).

Nearly 500,000 athletes participate in collegiate sports in the U.S. each year, and both male and female participants in sports where there are aesthetic (e.g., gymnastics), gravitational (e.g., distance running), or weight-class (e.g., wrestling, lightweight rowing) demands are at particularly high risk. College athletes are exposed to risk factors associated with being a college student and also those unique to their role as athletes and within their sport environment. Reasons for this elevated risk among certain sub-populations of athletes include factors that range from individual traits to interpersonal interactions to school and sport-league policies to cultural influences. At the individual level, characteristics that many people believe reflect being a disciplined athlete, such as rigid and restrictive eating and exercise behaviors, often look very similar to the characteristics of an individual at risk of an eating disorder. At the interpersonal level, verbal communication from a coach, teammate, or parent about weight and eating as it relates to sport performance can presage the development of an eating disorder. Observing teammate eating behaviors and weight can also influence eating and exercise behavior. School and league policies about the revealing nature of uniforms, whether weigh-ins are required, and the body mass index or weight above or below which athletes are ineligible for sport participation can also influence risk. School policies about coach and athlete education about eating disorders and sport nutrition and the accessibility of trained personnel (such as a dietician or a mental health professional trained in working with athletes at risk of eating disorders) can also influence risk. Finally, images in the media about the athletic ideal body or the sport ideal body—communicated through televised sporting competitions, sports magazines or websites, or photos of athletes on social media—contribute to a culture in which sport participants may consider a specific body size most desirable.

Because risk factors for disordered eating among athletes can arise at multiple levels, determining how to reduce risk is particularly difficult and can result in tensions at these different levels. There are existing interventions that target the athletes themselves, for example trying to change athletes' attitudes about what is a healthy body and encouraging them to fuel their body to perform optimally in their sport. However, if coaches are sending a different message—for example, that you have to be “thin to win”—or if institutional policies about uniforms or weigh-ins place pressure on the athletes to look or weigh a certain way, these athlete-focused efforts might be limited in effectiveness. This teaching case weaves together realistic story elements and familiar-feeling characters to give students a sense of both the challenges and opportunities they are likely to face when addressing the problem of eating disorder risk among athletes. It provides learners an opportunity to start developing possible solutions to a critical, and unresolved, public health problem. This case is relevant to learners regardless of their interest in or experience with sports. All learners will gain instruction in public health competencies that can be applied to a range of health issues and settings.

C. Learning Objectives and Target Audience

The learning objectives of this case include several that are specific to the topic of eating disorders prevention in the sport context and several others that support core competencies for public health

education promulgated by the U.S. Council on Linkages Between Academic and Public Health Practice (APHP) (http://www.phf.org/resourcestools/Pages/Core_Public_Health_Compencies.aspx).

The learning objectives specific to eating disorders prevention in the sport context are:

- 1) Describe the behaviors that characterize an athlete with an eating disorder or an athlete at risk of an eating disorder.
- 2) Identify the risk factors for disordered eating that are unique to athletes and the sport context, including individual, social, and administrative/policy risk factors;
- 3) Classify risk factors by whether they are predisposing factors, enabling factors, or reinforcing factors using the PRECEDE/PROCEED model;
- 4) Identify intervention goals and objectives and generate strategies for intervention to reduce eating disorder risk and differentiate between intervention targets and strategies on the basis of feasibility, impact, and outcome, using the PRECEDE/PROCEED model.

The learning objectives addressing Council on Linkages Between Academic and Public Health Practice competencies are:

- 1) Describes factors affecting the health of a community (Analytical/Assessment Skills 1A1);
- 2) Identifies assets and resources that can be used for improving the health of a community (Analytical/Assessment Skills 1A11);
- 3) Suggests relationships that may be needed to improve health in a community (Community Dimensions of Practice Skills 5A2);
- 4) Develops options for policies, programs, and services (Policy Development/Program Planning Skills 2B6);
- 5) Examines the feasibility and implications of policies, programs, and services (Policy Development/Program Planning Skills 2B7).

D. Case Materials

The complete case study consists of the case narrative, a teaching note, which includes a lesson plan, homework assignment, and in-class activity instructions, plus three companion technical documents that are available at no cost on the Internet.

Provided Teaching Case Narrative Document:

- 1) Cover page, plus table of contents, synopsis, and acknowledgments (3 pages)
- 2) Cast of characters (1 page)
- 3) Case study narrative “Weighing the Evidence: One University Takes a Hard Look at Disordered Eating Among Athletes” (11 pages)
- 4) Colburn University “Pre-participation Evaluation” or nutrition screening form for incoming freshmen and transfer athletes (1 page)

Provided Teaching Note Document: Includes overview material, lesson plan, written homework

assignment, and in-class assignment instructions. In addition to the provided materials and required readings listed below for students, teachers who are new to teaching about the PRECEDE/PROCEED model may find the following resource helpful:

Gielen, A.C., McDonald, E.M., Gary, T.L., and Bone, L.R. (2008). Using the PRECEDE/PROCEED model to apply health behavior theories. In K. Glanz, F.M. B. K. Rimer, & K. Viswanath, (Eds.), *Health Behavior and Health Education: Theory, Research and Practice*. 4th edition, pp. 407-433. San Francisco: Jossey-Bass.

Keep in mind that teachers can modify the lesson plan and assigned readings to accommodate a shorter or longer class period or to spread the case out over two class periods to spend more time introducing key concepts about the PRECEDE/PROCEED model, athletes and eating disorder risk, or other topics.

E. Required Reading for Students

- 1) Provided case study narrative document, plus the homework assignment, which appears on pages 11-19 of this teaching note. Teachers should distribute the readings and homework assignment to students one week before the class session in which the case will be discussed.
- 2) Companion technical documents
 - National Cancer Institute. (2005). Putting theory and practice together: PRECEDE-PROCEED. In *Theory at a glance: A guide for health promotion practice* (pp. 39-43). Available at: <http://www.cancer.gov/cancertopics/cancerlibrary/theory.pdf>
 - Phillips, J.L., Rolley J.X., Davidson, P.M (2012). Developing targeted health service interventions using the PRECEDE-PROCEED model: Two Australian case studies. *Nursing Research and Practice*. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3407641/pdf/NRP2012-279431.pdf>
 - Centers for Disease Control and Prevention. The social-ecological model: A framework for prevention. Website updated August 26, 2014. Available at: <http://www.cdc.gov/violenceprevention/overview/social-ecologicalmodel.html>
- 3) Peer-reviewed journal articles:
 - Greenleaf, C., Petrie, T. A., Carter, J., & Reel, J. J. (2009). Female collegiate athletes: Prevalence of eating disorders and disordered eating behaviors. *Journal of American College Health*, 57(5), 489-496. Key teaching points from article:
 - Around one-quarter of female collegiate athletes engage in disordered eating behaviors or exhibit symptoms of eating disorders. Only 2% are classified as having a clinically diagnosable eating disorder.
 - Athletes do not need to have a clinically diagnosable eating disorder to experience negative health consequences.

- Trattner Sherman, R., Thompson, R. A., Dehass, D., & Wilfert, M. (2005). NCAA coaches survey: The role of the coach in identifying and managing athletes with disordered eating. *Eating Disorders, 13*(5), 447-466. Key teaching points from article:
 - Coaches, athletic trainers, and teammates are all involved in identifying symptomatic athletes.
 - There is notable variability among coaches in terms of what eating behaviors and physical symptoms (e.g., amenorrhea—loss of normal menstrual function for women) are considered serious health threats.

- Becker, C. B., McDaniel, L., Bull, S., Powell, M., & McIntyre, K. (2012). Can we reduce eating disorder risk factors in female college athletes? A randomized exploratory investigation of two peer-led interventions. *Body Image, 9*(1), 31-42. Key teaching points from article:
 - Study evaluated peer-led intervention tailored specifically for athletes that addressed perceptions about sport and athlete-specific body ideals and ways to increase performance other than weight loss.
 - Intervention reduced risk factors for disordered eating, including thin-ideal internalization, dietary restraint, and shape and weight concern and increased help seeking for the Female Athlete Triad (a interrelated set of conditions including energy availability, menstrual function, and bone density).

- Thompson, R. A., & Sherman, R. (2014). Reflections on athletes and eating disorders. *Psychology of Sport and Exercise, 15*(6):729-734. Key teaching points from article:
 - Males and athletes in sports that do not have aesthetic, gravitational, or weight class demands are also at risk of disordered eating, but they are frequently left out of the conversation.
 - Eating behaviors can be “contagious” on teams, through processes including competitive thinness and social norms around weight and eating.
 - Identification of athletes engaging in disordered eating behaviors is often difficult due to stereotypes about what is an “ideal” or “acceptable” body size for a given sport and the assumption that if an athlete is performing well they must not have a problem.

F. Acknowledgments and Funding

This teaching case was written by Eric Weinberger for the Strategic Training Initiative for the Prevention of Eating Disorders (STRIPED www.hsph.harvard.edu/striped) under the direction of STRIPED director S. Bryn Austin and STRIPED scholar Emily Kroshus. We would like to thank reviewers of this case: Debra Franko, Jess Haines, Susan Madden, Susan Paxton, Ron Thompson, Roberta Trattner Sherman, Mary Wilfert, and Zali Yager. We also thank the students in the course “Sport and Exercise Psychology” at Fisher College for their participation in the pilot evaluation of this teaching case. This work was supported by the Ellen Feldberg Gordon Challenge Fund for Eating Disorders Research and grants T71-MC-00009 and T76-MC00001 from the Maternal and Child Health Bureau, Health Resources and Services Administration, U.S. Department of Health and Human Services.

G. Lesson Plan and Discussion Guide

Lesson Plan (1 hour 50 minutes)

1. Opening Whole Class Discussion (15 minutes)

- a) Introduction to Case and Initial Discussion: In class today, we will be focusing on our case “Weighing the Evidence: One University Takes a Hard Look at Disordered Eating Among Athletes” about fictitious Colburn University and the Dean Reilly’s efforts to reduce the health burden of eating disorders among the institution’s student-athletes. Your homework assignment was to begin planning a new program by completing Steps 1-5 of the “PRECEDE” part of the PRECEDE/PROCEED model to prepare for class today. Now for our in-class activity, you and your team of colleagues from Colburn University will propose a strategy for the dean of students based on this information and an evaluation plan guided by the “PROCEED” part of the PRECEDE/PROCEED model.
- b) **Q**: Which groups of athletes do you think are at risk for disordered eating? Do you think the Dean Reilly should target all student athletes or specific groups of student athletes? What are the benefits and drawbacks to each approach?
- c) **Q**: What do you think were the different kinds of forces at play at different social ecologic levels that contribute to disordered eating among student-athletes at Colburn University?
[NOTE: Teacher may draw ecological model on the board and note ideas generated by students during discussion.]
- For instance, in terms of team relations and coach-athlete relations?
 - How about in terms of the school environment and school policies?
 - How about norms and beliefs relating to sport or athlete ideal body size?
 - Any other ideas?
- d) **Q**: Instead of RISK, let’s think about PROTECTIVE factors now. What do you think were the different kinds of forces at play at different social ecologic levels that could help PREVENT or IDENTIFY disordered eating among student-athletes at Colburn University?
- For instance, in terms of team relations and coach-athlete relations?
 - How about in terms of the school environment and school policies?
 - How about norms and beliefs relating to sport or athlete ideal body size?
 - Any other ideas?

2. Program Planning Team Meeting (45 minutes)

- a) Introduction to Program Planning Team Meeting (5 minutes): For your homework assignment, you did the initial solo work using Phases 1-4 of the PRECEDE/PROCEED model to prepare for class. Now for our in-class activity, you and your team of colleagues from Colburn University will distill the best of your collective ideas from phases 1-5 to move on to phases 6-9: proposing an intervention plan for Dean Reilly and establishing how you will evaluate the effectiveness of your plan. *[PASS OUT IN-CLASS ACTIVITY TEAM ASSIGNMENT SHEET. NOTE: This in-class activity sheet could be distributed to students the day before class to give them time to read through the instructions before arriving to class.]*

Table 1. PRECEDE-PROCEED model phases and functions

PHASE	FUNCTION
1. Social Assessment	Assesses people's views of their own needs and quality of life.
2. Epidemiological Assessment	Documents which health problems are most important for which groups in a community.
3. Behavioral and Environmental Assessment	Identifies factors that contribute to the health problem of interest.
4. Educational/Ecological Assessment	Identifies preceding and reinforcing factors that must be in place to initiate and sustain change.
5. Administrative/Policy Assessment	Identifies policies, resources, and circumstances in the program's context that may help or hinder implementation.
6. Implementation	Identifies strategies for change
7. Process Evaluation	Gauges the extent to which a program is being carried out according to plan.
8. Impact Evaluation	Looks at changes in factors (predisposing, enabling, and reinforcing factors) that influence the likelihood that behavioral and environmental change will occur.
9. Outcome Evaluation	Assesses whether the intervention has affected health and quality of life indicators.

National Cancer Institute. (2005). Putting theory and practice together: PRECEDE-PROCEED. In *Theory at a glance: A guide for health promotion practice* (pp. 42). Available at:

<http://www.cancer.gov/cancertopics/cancerlibrary/theory.pdf>

- For the next **40 minutes**, you and your team will complete Phases 6-9 of the PRECEDE/PROCEED model guided by the activity sheet handout. You will describe what you think are the most impactful and feasible strategies for Dean Reilly to implement and outline your plan for evaluating whether your proposed strategy is meeting its intended goals. **Be sure to choose a note taker and timekeeper** for your meeting and be prepared to report back to the class on the intervention and evaluation strategy developed by your team.

Recommended Meeting Agenda and Timeline (40 minutes):

- **For the first 10 minutes:** Have a discussion where each person summarizes for the team the ideas you came up with while completing Phases 1-5 of the PRECEDE/PROCEED model. Identify common threads in your team members' ideas and also identify particularly viable ideas.
- **For the next 10 minutes:** Brainstorm possible areas for intervention. Activities should be reasonably based in evidence and/or theory, but at the same time, keep this part of the meeting open and creative so you can generate a lot of ideas. Select the activities that you think are most impactful and feasible for Dean Reilly to implement.
- **For the next 10 minutes:** Guided by step 7, 8 and 9 of the PROCEED model, decide as a group:
 - What evidence can you gather that will tell if your intervention(s) are being carried out according to plan?
 - What factors (predisposing, enabling, and reinforcing) could influence the likelihood that your desired outcomes will occur?
 - Determine how Dean Reilly will know if the intervention has affected the desired health and quality of life outcomes. When will you measure these outcomes? Who will be included in your sample? How long will you wait to get these measurements?
- **For the last 10 minutes:** Fill in the Phases 6-9 of the PROCEED model, *which can be found on the last page of the handout*, outlining your intervention strategies and evaluation considerations. We will want to hear from everyone on your team, so each of you should be prepared to help report back to the class on at least one aspect of your intervention or evaluation plan.
- At the end of the meeting, each team will be responsible for presenting your proposed intervention and evaluation plan. Each team will have **SIX** minutes to present the team's ideas to the rest of the class. Please choose one team member to be the timekeeper and another to be the note taker. Everyone will need to help with reporting back to the class.
- **NOTE:** Assuming a class size of 20 students, have students count off by five to create five teams of four students each. Team size and number of teams can be modified depending on class size.

3. Reconvene for Class Discussion (50 minutes)

- a) Teams Report Back (30 minutes): Each program-planning team reports back to the larger group on their intervention and evaluation plans (have all team members help report back). While teams are still in small group activity, write across top of board the headings for

phases 6-9 of the PRECEDE/PROCEED model: administrative/policy assessment, implementation, process evaluation, impact evaluation, and outcome evaluation. Then as teams report back, write basic details of each team's proposal on the board under the corresponding headings. **NOTE: SIX MINUTES PER TEAM ASSUMING FIVE TEAMS OF FOUR STUDENTS EACH.**

- **Q:** What *outcomes* (i.e., changes you expect to be achieved with your program) are you expecting to see in the *short-term* (meaning, 1-3 year time frame)? How about in the *long-term* (meaning, 4-6 year time frame)?
 - **Q:** What *impact* (i.e., the ultimate changes you expect to be achieved with your program) are you expecting to see in the 7-10 year time frame?
 - **Q:** How are your intervention plans informed by our understanding that disordered eating in sports contexts results from forces at multiple ecological levels?
 - **Q:** What deliberations did your team have about tradeoffs (e.g., balancing ideas in terms of time they would take to implement vs. cost; or scope vs. getting buy-in from different stakeholders)?
- b) Free Write (10 minutes)
- Have students take out piece of paper they can turn in at end of class, put their names on the paper, and write their response to the following question (3 minutes):

Imagine you're working at Colburn—as a coach, an athletic trainer, a physician, a professor, an administrator, or any other position. What do you think are the most important things you could do to help limit the health burden of disordered eating among the school's athletes?
 - Discuss Free Write responses together (7 minutes)
- c) Whole Class Discussion and Wrap-up (10 minutes)
- Prompt for discussion: What do you think the biggest challenges will be to implementing the programming discussed in class?

END CASE DISCUSSION

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WRITTEN HOMEWORK ASSIGNMENT: "PRECEDE" Model Report

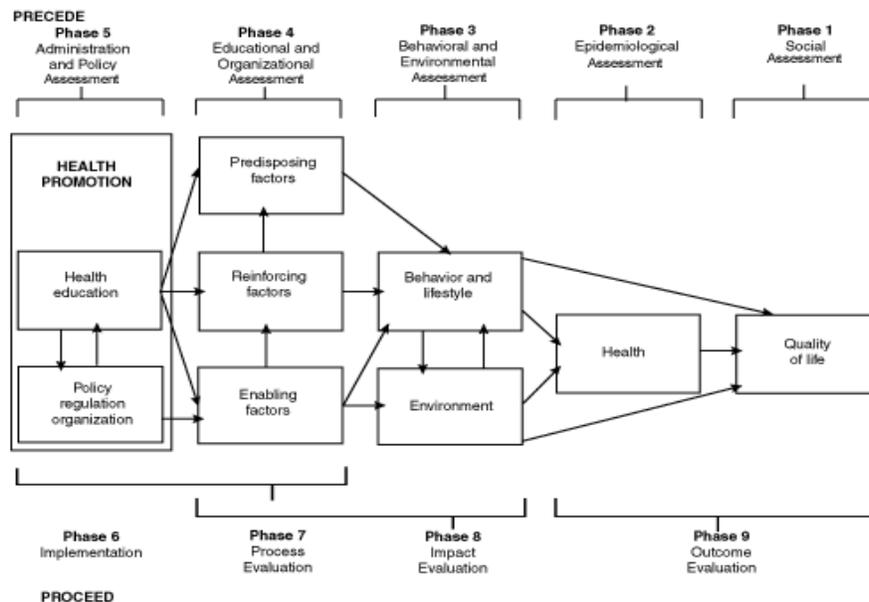
Format: Completed boxes for Phases 1-5 of PRECEDE/PROCEED model. Bulleted text or prose.

Required reading

Companion technical documents:

- National Cancer Institute. (2005). Putting theory and practice together: PRECEDE-PROCEED. In *Theory at a glance: A guide for health promotion practice* (pp. 39-43). Available at: <http://www.cancer.gov/cancertopics/cancerlibrary/theory.pdf>
- Phillips, J.L., Rolley J.X., Davidson, P.M (2012). Developing targeted health service interventions using the PRECEDE-PROCEED model: Two Australian case studies. *Nursing Research and Practice*. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3407641/pdf/NRP2012-279431.pdf>
- Centers for Disease Control and Prevention. The social-ecological model: A framework for prevention. Website updated August 26, 2014. Available at: <http://www.cdc.gov/violenceprevention/overview/social-ecologicalmodel.html>

Figure 1. PRECEDE/PROCEED model



http://www.nyc.gov/html/doh/images/cmha/pp_model.gif

As our case story unfolded, we saw how even though only a small number of student-athletes at Colburn University had a clinically diagnosable eating disorder, many were engaging in disordered eating

behaviors that impacted their health and athletic performance. We also learned that there were multiple levels of risk factors for disordered eating among Colburn student-athletes: from individual characteristics to policies to cultural attitudes. When our case study ended, Dean Reilly wanted to learn more about how Colburn can reduce disordered eating among student-athletes. He's has now decided to convene a task force about this topic—and you're invited to participate.

INSTRUCTIONS FOR HOMEWORK ASSIGNMENT: To prepare for class—and for the task force meeting—each of you must evaluate the extent of the problem, analyze the multiple levels of influence on disordered eating at Colburn University and decide which factors make disordered eating more or less likely to occur. The homework assignment is designed to help you do this in a systematic way, while learning about an important public health framework for understanding and addressing health problems—the PRECEDE/PROCEED model.

The case study presents many different factors that are related—or could be related—to disordered eating among student-athletes at Colburn University. To help organize your thoughts and keep the story straight while you are reading, you may find it helpful to keep a piece of paper beside you and draw a “mind-map” or a visual depiction of theses different factors and how they might be related.

After you have read the required companion technical documents, address Phases 1-5 of the PRECEDE model by completing the four boxes provided on the following pages. You can write your responses in bullet-point format. **Your grade on this written homework assignment** will be based on the clarity, completeness, and organization of your responses. In class, this information will be used to help decide where Dean Reilly should intervene if he wants to effectively and efficiently reduce disordered eating among Colburn student-athletes.

Although this teaching case story is fictional, its creation was very much informed by the experiences of real communities. So with this assignment, please be encouraged to make inferences about the fictional Colburn University drawing on real-life epidemiologic and other scientific literature that you feel are most relevant.

* * *

PHASE 1: SOCIAL ASSESSMENT

What are the community's perceived needs?

Athletes

Coaches

Medical personnel

Administrators

Others

PHASE 2: EPIDEMIOLOGIC ASSESSMENT

What are the health problems and what evidence do we have about how widespread these problems are? As part of the epidemiology assessment, select the health problem or problems that you think are most critical to address, and use that problem or those problems for your answers to the rest of the PRECEDE/PROCEED exercise.

PHASE 3: BEHAVIORAL AND ENVIRONMENTAL ASSESSMENT

What factors influence the health problems? You may chose to focus on a single health problem, or you can address multiple health problems.

Hint: Use the article “The social-ecological model: A framework for prevention” to think about the different levels of factors that influence this problems.

<u>Individual</u>	
<u>Social/relationship</u>	
<u>Community</u>	
<u>Societal</u>	

PHASE 4: EDUCATIONAL AND ORGANIZATIONAL ASSESSMENT

What are antecedent and reinforcing factors that are needed for change?

Hint: Read pages 39-43 in "Theory at a glance: A guide for health promotion practice" and the article "Developing targeted health service interventions using the PRECEDE-PROCEED model: Two Australian case studies"

Predisposing

Enabling

Reinforcing

PHASE 5: ADMINISTRATIVE/POLICY ASSESSMENT

What are the polices, resources, and circumstances that could help or hinder implementation of a program designed to reduce disordered eating at Colburn University?

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IN-CLASS ACTIVITY: Using the PRECEDE/PROCEED framework to generate high impact strategies for change

With today's teaching case, we are helping the dean of students at Colburn University come up with strategies to reduce the health burden of disordered eating among the institution's student-athletes. For your homework assignment, you did the initial work solo using Phases 1-5 of the PRECEDE/PROCEED model to prepare for class today. Now for our in-class activity, you and your team of colleagues from Colburn University will distill the best of your collective ideas from phases 1-5 to move on to phases 6-9: proposing an intervention plan for Dean Reilly and establishing how you will evaluate the plan's effectiveness. By the end of your meeting, you and your team will report back to the class on your team's final program plan.

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For the next **40 minutes**, you and your team will complete Phases 6-9 of the PRECEDE/PROCEED model guided by the activity sheet handout. You will describe what you think are the most impactful and feasible strategies for Dean Reilly to implement, and outline your plan for evaluating whether your proposed strategy is meeting its intended goals. **Be sure to choose a note taker and timekeeper** for your meeting and be prepared to report back to the class on the intervention and evaluation strategy developed by your team.

Recommended Meeting Agenda and Timeline (40 minutes):

- **For the first 10 minutes:** Have a discussion where each person summarizes for the team the ideas you came up with while completing Phases 1-5 of the PRECEDE/PROCEED model. Identify common threads in your team members' ideas and also identify particularly viable ideas.
- **For the next 10 minutes:** Brainstorm possible areas for intervention. Activities should be reasonably based in evidence and/or theory, but at the same time, keep this part of the meeting open and creative so you can generate a lot of ideas. Select the activities that you think are most impactful and feasible for Dean Reilly to implement.
- **For the next 10 minutes:** Guided by step 7, 8 and 9 of the PROCEED model, decide as a group:
 - What evidence can you gather that will tell if your intervention(s) are being carried out according to plan?
 - What factors (predisposing, enabling, and reinforcing) could influence the likelihood that your desired outcomes will occur?
 - Determine how Dean Reilly will know if the intervention has affected the desired health and quality of life outcomes. When will you measure these outcomes? Who will be included in your sample? How long will you wait to get these measurements?
- **For the last 10 minutes:** Fill in the Phases 6-9 of the PROCEED model, *which can be found on the last page of the handout*, outlining your intervention strategies and evaluation considerations. We will want to hear from everyone on your team, so each of you should be prepared to help report back to the class on at least one aspect of your intervention or evaluation plan.

At the end of the meeting, each team will be responsible for presenting your proposed intervention and evaluation plan. Each team will have **SIX** minutes to present the team's ideas to the rest of the class. Please choose one team member to be the timekeeper and another to be the note taker. Everyone will need to help with reporting back to the class.

Good luck and have fun!

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PHASE 6-9 of the PRECEDE/PROCEED MODEL: To Be Completed by Each Team During In-Class Activity (see p. 41 in *Theory at a Glance*):

PHASE 6: Implementation	PHASE 7: Process Evaluation	PHASE 8: Impact Evaluation	PHASE 9: Outcome Evaluation
Identifies strategies for change.	Gauges the extent to which a program is being carried out according to plan.	Looks at changes in factors (predisposing, enabling, and reinforcing factors) that influence the likelihood that behavioral and environmental change will occur.	Assesses whether the intervention has affected health and quality of life indicators.

Please note that eating disorders are serious health issues. If you are worried about your own eating behaviors, you should speak to a clinician or counselor about your concerns. If you do not have a primary care physician with whom you are comfortable speaking, most institutions have a health or counseling center where you can find a trained professional to discuss your concerns. If you would like to learn more about eating disorders, the National Eating Disorders Association has comprehensive information including resources for care seekers and how to help friends and family members: <http://www.nationaleatingdisorders.org/general-information>.